

• Intelligent Robot

INTELLIGENT EDUCATION ROBOT PLATFORM

New
ED-7270

- Insight into the Intelligent Robot and step-by step practices
- Various services through the functions of ZigBee and RFID Reader
- Recognition of the robot's position and direction
- Various training contents using the dialogue language(programs)
- Image processing by the Pan/Tilt USB Camera
- Human-friendly design to interact with the human being
- Ideal for the Ubiquitous and Home Network based experiments
- Home security experiments on utilization of its unattended security function
- Robot control API using Visual C++ and control functions by Visual Basic Scripter
- Next Generation Cell(Lithium Ion) – compact size and increase in life time



> EXPERIMENTS

1ST STEP

- Concept and definition of the Intelligent Robot
- Structure and principle of the Intelligent Robot

2nd STEP

- Principle and practice for the Intelligent Robot's sensor
- Voice recognition and image sensor
- Programming through the dialogue-type language

3rd STEP

- Operation of the Dialogue-based Robot
- Ubiquitous environment based control
- Autonomous movement and object recognition

4th STEP

- Practice on movement along optimized routes
- Practice on remote network control



> SPECIFICATIONS

- **System**
 - » CPU : Intel Pentium 1.8GHz
 - » Memory : 512MB
 - » Wireless : IEEE802.11g(USB)
- **Display**
 - » TFT-LCD : 256k Color, 7inch, Touch Screen
 - » Dot Matrix : 16 x 32 Dot, 3Color(5letters in English)
- **Motion**
 - » Motor : 4-Axis
 - » Operation Mode : Closed Loop
- **User Interface Port**
 - » USB : USB 2.0 A-Plug
- **Sensor**
 - » Ultrasonic : 10cm to 4meter
 - » IR Distance : 10cm to 80cm
 - » Motion Detect : 119° x 98°, 5meter Distance
 - » Touch Sensor : 4 Point
 - » Illuminance Sensor : 0~10 level output
 - » Voice Recognition : Software engine(VoiceEZ v2.0) (Option)
 - » Voice Speech : Software Voice Speech(Option)
- **Battery**
 - » Lithium Ion : 6S4P(Smart Battery System)
- **Mechanism**
 - » Driving Type : 2-wheel differential
- » Motion Range : Pan axis : $\pm 35^\circ$
Tilt axis : Up 40° , Down 30°
- **ZigBee**
 - » Coordinator : 2.4/2.4835GHz
- **RFID**
 - » Frequency : 13.56MHz
 - » Protocol : ISO/IEC 14443 A/B Standards, MIFARE

PHYSICAL CHARACTERISTICS

- **Dimension** : 420(W) x 700(H) x 200(D)mm
- **Weight** : 20kg

ACCESSORIES

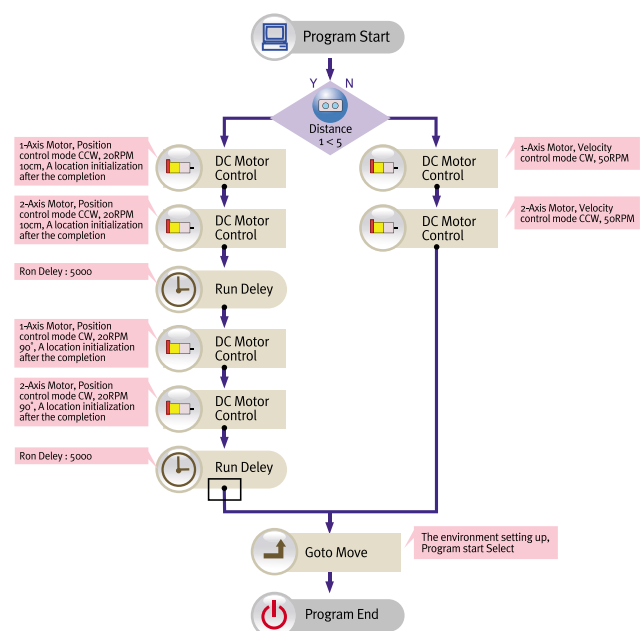
- DC Power Supply(including Recharger Cable)
- Robot Storage Case(Aluminum)
- Flow Chart Software CD
- Wireless Access Point

OPTIONS

- Voice Recognition Module
- Voice Synthesis Module
- Navigation

Capable of Controlling the Robot Without an Advanced Language

- The Interactive dialogues language allows self programming and helps understand the relationship between the robot's various sensors and each of its operation parts by detecting problems in operation
- The user can program the Application software based on URC (Ubiquitous Robotic Companion) which is a standard for the Intelligent Robot, and can apply the application program to all of ED's Intelligent Robot
- A Flow chart based GUI environment for the robot's operation without having to take basic courses on programming language(Visual C++, Visual Basic, C++, Q); Such programming result can be checked on Debug View in the GUI environment
- "Smart Update" to ensure use of a latest version of the dialogue based application program



Ubiquitous based network

- IEEE802.11g and IEEE802.15.4 networks to obtain necessary information for the robot anytime anywhere



- HOME
- Traffic
- Market
- Office
- Hospital
- Building

Dot Matrix that expresses the robot's emotion

- Simple expression of the robot's current emotion through Dot Matrix
- 16x32dot
- 3 Colors(Green, Red, Yellow)
- 5 Characters in English



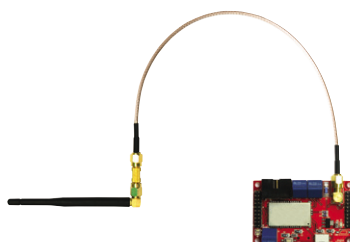
Sign language using image processing

- Convenient control of the robot through the Algorithm for the sign language



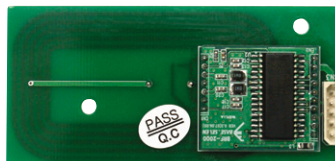
ZigBee Coordinator (IEEE802.15.4)

- ZigBee Coordinator applied to obtain information on the sensor nodes of ZigBee in neighboring area



RFID Reader

- Enables the user recognition and applied service through RFID Reader on the robot's front side



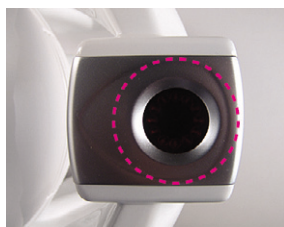
Touch Sensor

- Various types of HRI functions using the touch sensor on the robot's front and head



Robot Position Recognition

- Creation and movement to the shortcut in final destination from a point the robot recognizes its current position



Collision Sensor

- Safe operation using three sensors mounted on the robot's front side

